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THE STRUCTURE OF POLITICAL THEORY

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Abstract

Knowledge of the external world is said to be secured in an objective fashion according to the principles of proof, refutability, and those canons of science which can be traced to Newton's four published Rules of Reasoning in Natural Philosophy. Much of scientific reasoning, however, especially in the human sciences, involves propositions incapable of either proof or falsification, yet belief in and commitment to unprovable propositions obviously influence scientific work and provide the basis for schools of thought. Political theories are organizations of subjective assertions which, along Q methodological lines, can be shown to be structured, thereby giving empirical substance to Newton's unpublished Fifth Rule. As a demonstration, leading hypotheses concerning the nature of political society are collected, and the views of major political theorists (Plato, Locke, Marx, et al.) are each modeled as Q sorts. Correlation then demonstrates the interconnections among these schools of thought, and factor analysis points to the intellectual traditions of Western political philosophy. Q sorts obtained from citizens from a variety of walks of life demonstrate the extent to which these traditions have penetrated the public mind.

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Prologue: "Hypotheses non fingo"

Sir Isaac Newton's "Rules of Reasoning in Philosophy," written more than 250 years ago, still provide the foundation for contemporary scientific thinking, in the social sciences no less than in "natural philosophy" (theoretical physics). Located in the third edition of his Principia Mathematica (Newton, 1726), they read as follows (from Cajori's revised English edition, 1934, pp. 398-400):

> RULE I: We are to admit no more causes of natural things than such as are both true and sufficient to explain their appearances.
>
> RULE II: Therefore to the same natural effects we must, as far as possible, assign the same causes.
>
> RULE III: The qualities of bodies...which are found to belong to all bodies within reach of our experiments, are to be esteemed the universal qualities of all bodies whatsoever.
>
> RULE IV: In experimental philosophy we are to look upon propositions inferred by general induction from phenomena as accurately or very nearly true, not withstanding any contrary hypotheses that may be imagined, till such time as other phenomena occur, by which they may either be made more accurate, or liable to exceptions.

Rule I asserts the simplicity of nature which "affects not the pomp of superfluous causes." Rule II follows as a consequence, and asserts the principle of uniformity: Stones in Europe and America, for example, may be assumed to fall to earth for the same reason. Rule III is necessary to establish universals through induction based on the results of experimentation, and serves to protect evidence from "dreams and vain fictions." Hence, if it appears insofar as experiments can determine that all planets gravitate towards one another, then we can assume, through this rule of induction, that all bodies are so endowed. Finally, Rule IV (the rule of evidence) substantiates III by denying the efficacy of alternative hypotheses which are not tied to observation or experimentation: "This rule we must follow," Newton said, "that the argument of induction may not be evaded by hypotheses," where by hypothesis was meant mere speculation ("vain fictions").

Newton opposed Descartes' rationalism and was concerned to establish rules of reasoning which would give priority to observation and experiment. If it could be demonstrated experimentally, he thought, that the velocities of objects cancel upon collision, and if it could be assumed by induction that this applies universally (Rule III), then the conclusion that the universe will eventually come to a standstill ought not be discounted simply by asserting a contrary hypothesis, e.g., that God would not have created such an imperfect universe. Hence his pronouncement "Hypotheses non fingo" (I do not feign hypotheses).

Newton's rules of reasoning were designed to deal with the testable material world, i.e., with objective reality, but evidence has recently surfaced that he was increasingly concerned as well with the inner world of subjective experience. Penciled in the margins of the second edition of the Principia (1713), as if contemplated for the third edition, was a lengthy Fifth Rule which "has until now slept among his papers," according to Koyre (1965, p. 272), who discovered it and has provided the following translation:

> RULE V: Whatever is not derived from things themselves, whether by the external senses or by the sensation of internal thoughts, is to be taken for a hypothesis. Thus I sense that I am thinking, which could not happen unless at the same time I were to sense that I am. But I do not sense that any idea whatever may be innate. And I do not take for a phenomenon only that which is made known to us by the five external senses, but also that which we contemplate in our minds when thinking: such as, I am, I believe, I understand, I remember, I think, I wish, I am unwilling, I am thirsty, I am hungry, I rejoice, I suffer, etc. And those things which neither can be demonstrated from the phenomenon nor follow from it by the argument of induction, I hold as hypotheses.

Newton was apparently toying with the idea that "phenomena" could not be restricted to material objects which come to be known to us through the senses of touch and sight, but were to include thoughts and feelings. (He was, therefore, as Stephenson [1979, p. 354] has suggested, searching for "a rule for hypotheses not derived from experiments and observations of things in the outside world": Feeling and belief, not logic, were at issue.) And although he could accept Descartes' Cogito -- "I sense that I am thinking, which could not happen unless at the same time I were to sense that I am" -- he was unwilling to assume that all such thoughts were necessarily innate. Yet we get our thoughts, including our scientific theories, from somewhere: But where? Newton found Descartes' vortical and Leibnitz's vitalistic hypotheses unconvincing but knew that he could not disprove them -- and vice versa, that they could neither disprove his nor prove theirs to his satisfaction -- but he was aware after a lifetime of acrimonious and inconclusive debate that ways of seeing and thinking about the world enter into science as surely as do measurement and testability.

Controversy continues as to why Newton suppressed publication of this interesting rule of reasoning (the rule of subjectivity) -- that it didn't really square with the previously published four, that it merely raised an issue without providing a solution, that it would make him appear inconsistent with his prior pronouncements, that he was not ready to take on the Cartesians, that he could not hope to succeed where Locke had failed, etc. (see Cohen, 1966; Holton, 1973; Koyre, 1965). For whatever reason, Rule V does not appear in the final edition of his Principia, and the consequence of its omission continues to haunt modern science, especially social science -- indeed, modern man. As Koyre (1965) has written:

> Yet there is something for which Newton -- or better to say not Newton alone, but modern science in general -- can still be made responsible: it is the splitting of our world in two...by substituting for our world of quality and sense perception, the world in which we live, and love, and die, another world -- the world of quantity, of reified geometry, a world in which, though there is place for everything, there is no place for man. Thus the world of science -- the real world -- became estranged and utterly divorced from the world of life, which science has been unable to explain -- not even to explain away by calling it "subjective." (p. 23)

Conjectures, Refutations, and Experience

Science according to Newton's four published rules strives to make positive statements about the world, and it progresses, according to Karl Popper, through falsification. But in truth there is as much that is speculative and even unprovable in science as confirmable, with volumes of facts paralleled by equal measures of speculation. Of the nature of the physical world, for example, it has been variously asserted that the universe is infinite (Nicholas of Cusa), that matter does not depend on the existence of men (Henry Moore), that one body cannot act on another at a distance through a vacuum (Newton), and that the speed of light is an absolute constant (Einstein). Of the origin of life, by the same token, it has been contended that it is a creative act of God (ancient religious teaching), that it develops from amorphous slime under the influence of heat (Thales), that it occurs through the action of forces liberated in decay (Harvey), and that it can only come from other living things (Pasteur). Many of these contentions were accepted in their time on grounds short of proof, and were argued vigorously despite their irrefutability. They are subjective hypotheses, of the kind Newton's Fifth Rule addresses, some of which are unprovable and destined to remain so, which is not of course to say that evidence cannot be amassed in their behalf.

The human sciences face the same array of irrefutabilities. Van Gogh's having cut off his ear, for example, has been explained by his frustration brought on by his brother's engagement, by his having failed to establish a stable relation with Gaugin, by his homosexual impulses, by his identification with Jack-the-Ripper ... and many more (see Runyan, 1981). In the same way, it has been conjectured of consensus that it is a prerequisite for representative government (V.O. Key), that it is firmly tied to affluence (Robert Lane), that it is an historical accident of immigration (Louis Hartz), that it is due to extrapolitical factors (Robert Dahl), that it results because there is no common commitment to core values (Michael Mann), and so on in large quantities. All of these propositions are conjectural and none provable in the sense that we can prove that water boils at 100° C, yet neither are they arbitrary or frivolous.

"Where do theories come from?" Newton asked this question, as has Shively (1974), who gave one of his chapters this title. Their answers are the same: From observation and reason. "To build theory

inductively," Shively tells us, "the researcher scans his observations, looking for patterns. To build theory deductively, he deduces ... what sort of a pattern he should expect and then looks for it in his observations" (Shively, 1974, p. 166). But deduction can only elaborate a theory already found (without specifying its source), and induction can only generalize from facts (Newton's Rule III), which is only to arrive at a conclusion and is not the same as having a theory about facts. Apples and stones fall to earth, but gravity is not in their pattern of falling: It is a theory about their falling.

Einstein (1954) declared it a great error to believe "that theory comes inductively from experience" (p. 301), nor was he impressed with logic: "Pure logical thinking cannot yield us any knowledge of the empirical world" (p. 271). It is true that observed reality stimulates theoretical thinking and that appeal is made to experienced facts as a means to justify theories and concepts once adopted -- "all knowledge of reality starts from experience and ends in it" (p. 271) -- but the concepts themselves are "free inventions of the human intellect" (p. 272) and are progressively "more abstract and remote from experience" (p. 282) (cf. Lanczos, 1959). Galileo's conception of gravity was not an induction based upon scanned observations (Shively) -- i.e., it was not a generalization which flowed summarily from the observations of swinging pendulums, moving planets, and balls rolling down inclined planes -- but a free invention that went beyond surface impressions to "the soul of the fact" (Poincare, 1914, p. 28). Subatomic phenomena such as quarks, neutrinos, hadrons, charm, and flavor (having never been seen) are even more removed from direct observation, and what we know of them has not been gained from immediate experience but by isolating and "idealizing experience" (Heisenberg, 1975, p: 226) so as to be able to discover their mathematical structures.

Theories, then, do not derive as factual summaries (induction), nor are they innate in the mind (Newton's Fifth Rule); rather, they are subjective creations which are constrained and substantiated by experience.

Hypotheses as Operant Subjectivity

Newton had no solution for the issues which his Fifth Rule raised -- hence its deletion from publication -- but Stephenson (1979) has proposed a revision which renders the Rule consequential as a probe for studying the form and structure of any and all theoretical knowledge:

> Rule V: Different hypotheses for a concourse, none capable of proof or disproof, are subjective hypotheses. Such have a place in induction, by way of operant factors, the inherent structure of the concourse, and the subjective hypotheses proffered in relation to it. (Stephenson, 1979, p. 355)

This revised Rule requires, first, the collection of essentially untestable propositions, referred to as a concourse -- from the Latin "concursus" (meaning "a running together," as when ideas run together in thought) -- of the kind mentioned above vis-a-vis the universe, biogenesis, Van Gogh's ear, and consensus: Hence concern is not with the proposition that "Van Gogh cut off his left ear," which is testable as to

its truth or falsity (by appealing, in this instance, to the historical record), but with the contestable assertion that he did so "because he identified with prostitutes," "because of his homosexual tendencies," "because he sought to emulate Jack-the-Ripper," and so forth. These are the free inventions of the inquiring mind.

Second, leading hypotheses are modeled as Q sorts (to be described below), one model for each hypothesis in question: With respect to biogenesis, for example, a Q sort could be constructed to represent the Aristotelian conception, one for Thales, and so on for Harvey, Pasteur, Oparin, etc., all grounded in belief rather than testable knowledge per se. None was provable and none refutable in the science of its day, yet each provided an intellectual centroid around which schools of thought developed and issues were hotly debated. The Q-sort simulations are therefore formal models (Rosenblueth & Wiener, 1945) of major theoretical positions.

Finally, the (Q) factor analysis of all hypotheses so modelled reveals the operant structure inherent in the concourse, i.e., the structure inherent in the subjective communicability generated by the theorists. The factors represent intellectual break-points in the history of ideas, the philosophical traditions around which specific schools of thought have clustered. The factors therefore point to more general and abstract hypotheses, to growths in knowledge as genuine inductions from more specific hypotheses, and in the subjective domain serve to subordinate testability to the more fundamental considerations of meaning and form. They are idealized experience whose structures are mathematical.

The Structure of Political Theory

The principles and procedures involved in Stephenson's revision of Newton's Fifth Rule are best exemplified in the context of an actual illustration, and there is perhaps no more contestable arena for this purpose than that provided by perspectives concerning the nature of political society. No less than in previous examples, the literature is full of arguable assertions of the following kind:

> States are as their citizens are: They grow out of human characters. (Plato)
>
> An individual can develop fully as a moral being only through participation in the life of the state. (Aristotle)
>
> Politically organized society -- the machinery of authority, government and coercion -- is not natural to man: It is simply a useful and necessary arrangement for a mankind which has fallen from spiritual grace. (St. Augustine)
>
> The law of life under which every political organization exists is growth and expansion. Thus, force is an integral, and most essential, element in politics. (Machiavelli)
>
> The basis of government flows from a covenant among the citizens themselves who institute a government to rule over

them for their mutual security. (Hobbes)

There exist certain innate human rights which no government can rightly take away without the consent of the governed. (Locke)

The sole justification for allegiance is the advantage which it procures to society by preserving peace and order. (Hume)

The source of all political authority and, therefore, of all true sovereignty must always lie with the people as a whole. (Rousseau)

Every form of society is based on the antagonism of oppressing and oppressed classes. Hence, the executive of any state is but a committee for managing the common affairs of the ruling class. (Marx)

These are molecular hypotheses, the elements of the concourse of Western political philosophy, to which were added other views by the same theorists, plus those of recent theorists such as Berelson, Camus, Dahl, Eckstein, Niebuhr, Nietzsche, Sartori, and Schumpeter. These were taken largely from encyclopedic and secondary sources, eventuating in a population of approximately 200 such statements. A sample of 45 of these propositions was then selected for experimental purposes as described below.

The usual tack taken by philosophers is, in continuity with their predecessors, to rely on language and reason, weaving the fabric of argument by selecting (albeit in a more or less disciplined fashion) those perspectives and expressions compatible with the point of view they are trying to advance. Hence, Goldsmith (1966) can argue the dissimilarities between Plato and Hobbes while Lamb (1973), by quoting selectively and raising the argument to a different level of abstraction, can argue the similarities between the two.

Procedures now exist for formalizing these operations for purposes of comparison and contrast, in terms of Q methodology (Brown, 1980, 1985; Stephenson, 1953). Figure 1 displays the Q sort constructed to represent the Platonic hypothesis, the 45 statements being ranked from those most compatible with the Platonic viewpoint (+5) to those most incompatible (-5), and similarly for the Hobbesian hypothesis for the same 45 statements (see Note 1). The gist of the two can be obtained by examining the statements scored most positively:

The Platonic Viewpoint

18. The best state is one which most nearly copies the heavenly model by having a minimum of static perfection, and rulers who best understand what is right and good.

PLATO

-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5
24	4	9	16	2	1	12	14	3	7	18
41	26	10	27	8	5	20	19	21	34	39
	44	11	33	13	6	22	25	28	43	
		38	40	15	17	23	37	29		
				32	30	31				
				36	35	45				
					42					

HOBBES

-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5
29	3	7	6	1	2	4	9	11	14	8
43	16	18	20	5	15	12	10	25	17	41
	34	27	23	13	19	24	22	35	31	
		33	28	37	21	32	45	40		
				39	26	36				
				42	30	38				
					44					

Figure 1. The Platonic and Hobbesian hypotheses, formally modelled as Q sorts.

39. Political society is an integrated system of differentiated roles, and a society is healthy when each of its classes performs its peculiar function in such a way as to be in harmony with all the others.

The Hobbesian Viewpoint

8. Man is not by nature a social being, but is moved chiefly by fear and selfish desires. The power of the state must be absolute, therefore, in order to perform its main function -- namely, to assure the self-preservation of each against all.

41. The basis of government flows from a covenant among the citizens themselves who institute a government to rule over them for their mutual security.

As Goldsmith (1966) has said, Hobbes rejected the classical theory and advanced the view instead that "society exists to maintain life rather than to attempt to attain the good life" (p. 206), and this much is evident in the above statements as well as in the overall correlation between the two viewpoints ($r = -0.43$).

On successive occasions, Q sorts were constructed as well to

represent other major theoretical positions -- Aristotle, St. Augustine, Machiavelli, Locke, and others, as shown in Table 1. The correlation matrix which these representations produced resulted in four factors (A to D), indicative of four major philosophical positions -- in fact seven, when we take into account that three of the factors (A, B, and D) are bipolar.

Table 1

OPERANT STRUCTURE OF POLITICAL PHILOSOPHY

	Operant Factors[1]			
	A	B	C	D
1. Plato (427-347 BC)	(90)	-06	-15	11
2. Aristotle (384-322 BC)	(92)	03	01	-07
3. St. Augustine (354-430)	(47)	08	05	17
4. Machiavelli (1469-1527)	13	(-77)	04	07
5. Hobbes (1588-1679)	(-47)	-07	07	22
6. Locke (1632-1704)	-21	(72)	(52)	04
7. Hume (1711-1776)	-02	-10	(77)	02
8. Rousseau (1712-1778)	-03	(76)	01	-25
9. Burke (1729-1797)	(70)	-05	20	(40)
10. Marx (1818-1883)	-32	32	(40)	(-51)
11. Nietzsche (1844-1900)	-36	(-60)	25	-08
12. Camus (1913-1960)	(-43)	21	(58)	-01
13. Contemporaries[2]	-03	-17	19	(65)

[1]Loadings in parentheses significant, decimals to two places omitted.

[2]"Contemporaries" is a composite of Berelson, Dahl, Eckstein, Sartori, and Schumpeter, as summarized by Pateman (1970).

Metaphysical Considerations

Before turning to an interpretation of the results, it is important to note that the factors in this case point to the inherent structure of the concourse relating to theories of political society, and that they are therefore "the subjective counterpart of the physicist's inherent structure of reality" (Stephenson, 1979, p. 355). The inherency in this instance is demonstrable as a purely inductive matter: Any political theorist familiar with the views of these philosophers could, with the same set of 45 statements (or any equivalent set of reasonable size and comprehensiveness drawn from the same concourse), model those views as Q sorts and produce the same factor structure. Therefore, were Edmund

Burke, for example, to have been puzzled, as Newton was in his Fifth Rule, about the source of his own ideas (a matter of continuing interest to Burke scholars, e.g., Browning, 1984), he could have demonstrated to his own satisfaction the close connection of his thinking to that of Plato and Aristotle (factor A) rather than to that of Rousseau (B) or Hume (C).

The mechanism mediating this process is Peirce's (1940) law of mind, to the effect that "ideas tend to spread continuously and to affect others which stand to them in a peculiar relation of affectibility" (p. 340). An idea, Peirce says, has an "intrinsic quality as a feeling" and tends "to bring along other ideas with it" (p. 345), a number of ideas eventually uniting "under one general idea" (p. 348). In the above example of Plato (Figure 1), the two statements gaining the highest score (+5, for statements 18 and 39, supra) stand in a "pecular relation of affectibility" to those statements ranked next to them (at score +4):

7. Both the just man and the ideal state must develop wisdom in their actions, courage in their decisions, and temperance in their desires and appetites. Such ideals can be realized only imperfectly in this world, but they are goals toward which people should work.

34. States are as their citizens are: They grow out of human characters.

43. A political society exists for the sake of noble actions: The state is therefore the highest kind of community, for it aims at the highest good.

The affectibility of the above are in marked contrast to, say, statement 30, which is of zero saliency (see Figure 1):

30. A state may be a free state without man himself being a free man.

Hence the statements scored +5, being the most Platonic in esse, bring the other statements with them in the order of their affectibility, spreading continuously (through feeling) and uniting into that "general idea" which we refer to as the Platonic hypothesis -- and similarly for the Aristotelian, Augustinian, and other hypotheses in Table 1. The Q sorts model this process formally, not as a matter of testability, but, as Heisenberg has said, in order to "prepare the phenomena of nature so that they show their mathematical structure" (Discussion, 1975, p. 557).

Factors A to D reveal that structure and may be likened to holograms indicating the major contours of Western thought vis-a-vis the nature of political society. These are the templates of our cultural heritage. Hence Plato, Aristotle, and to a lesser extent Augustine define the classical tradition (factor A, Table 1) and are joined by Burke, who gives this viewpoint its eighteenth-century expression; Hobbes's view is the reverse of these, as indicated by the negative loading for the Q sort representing his standpoint; i.e., there is a general tendency for those statements given high positive scores for Plato and Aristotle to receive high negative scores in the case of Hobbes, and vice versa. The

intellectual breakpoint, as textbooks on political philosophy generally attest, comes with Machiavelli, who defines factor B (negative): Machiavelli therefore represents a new sentiment, a departure from the classical tradition of factor A, and this viewpoint is reasserted by Nietzsche. Locke and Rousseau define the positive pole of factor B; Machiavellianism thereby stands contrasted with social contractarianism. Hume alone defines factor C, although he appears to have elaborated aspects of Locke's views. Marx likewise appears in part to have elaborated aspects of this tradition; Camus's viewpoint combines Hobbes (factor A-negative) and Hume (C). The views of contemporary democratic theorists (Berelson, Dahl, Schumpeter, et al.) are alone in defining factor D, but may be suspected of being in part a reaction to aspects of Marxism (which is negatively loaded on D) and an elaboration of features of Burke's conservatism, as has been suggested (e.g., by Duncan & Lukes, 1967, p. 184).

The individual Q sorts are intellectual structures, grounded in belief and feeling (as mediated by Peirce's law of mind), and are analogous to molecular structures in the material world: Lactose and sucrose, for example, are sugars with identical molecular composition ($C_{12}H_{22}O_{11}$), as are dextrose, glucose, fructose, and galactose ($C_6H_{12}O_6$): They are distinguishable from one another by their atomic structure, yet they share common characteristics -- e.g., in their being sweet, sticky, and crystalline. The same can be said of the various philosophical positions in Table 1: They are comprised of the same atomic statements, some (like the sugar family) differing structurally only in slight degree and, like Plato and Aristotle, sharing many features in common; those differing in major respects are different in kind, and it is these gross differences which the four factors represent.

In conventional factor analysis (R method) measurements are made of the objective properties of things. In chemistry, for example, readings are taken on boiling point, carbon number, and the like, with factor analysis pointing to the structural connections among attributes so measured (Malinowski & Howery, 1980), and the same logic is extended into the social realm. In Q methodology, however, the situation is otherwise: A Q sort, representing a Platonic or any other point of view (including one's own), does not involve measurements on any of the statements taken singly; rather, a Q sort represents a state of mind, i.e., the state of a system (of thought).

Q methodology is therefore in line with the "new" science: "Quantum theory ... applies to states of matter, not to the individual observable in the states" (Stephenson, 1982, p. 237; cf. Stephenson, 1983); likewise in Q methodology, each factor subsumes a state of mind rather than the "observables" (traits, variables, etc.) in the state. The statements in the political society concourse are equiprobable a priori, like particles in colloidal suspension, and only achieve functional location as a consequence of the measurement process itself, i.e., as they are quantumized in the course of the Q sorting: As in Heisenberg's uncertainty principle, we cannot know each statement's position apart from the act of measurement, i.e., we cannot know the significance of any statement prior to its being assigned in the course of the Q sorting. Nor can it be predicted ahead of time precisely how many Q factors will emerge from a given experiment: This, too, is uncertain -- as uncertain as the number of quarks which will be emitted from a bombarded atom. In

Q factor analysis, therefore, as in quantum mechanics, the state of a system of philosophical thought "can be characterized mathematically by a vector in space of many dimensions, and this vector implies statements concerning the statistical behavior of the system under given conditions of observation" (Heisenberg, 1975, p. 232), i.e., of Platonic, Marxian, Lockean, and other frames of referentiality. The resulting operant factors are hypothetical, like the Platonic Pure Forms to which they are analogous, but they can be reasonably estimated through the weighted averaging of the Q sorts which define them. Consequently, order and form precede meaning -- i.e., we must determine, through measurement, the structure of thought as it exists, inherent in concourse, prior to rendering an interpretation, a matter to which we now turn.

Factor Interpretation

The factors shown in Table 1 (supra) are primary abstractions which have arisen inductively (i.e., have been induced) from the more specific hypotheses that entered into them. They are theoretical entities and have the status of higher order theories which encompass and go beyond the contributing hypotheses. Just as Einstein's theory incorporated Newton's as a special case, so the Platonic, Aristotelian, Augustinian, and Burkean hypotheses are special cases of factor A, the essence of which must be grasped and interpreted by the observer, as governed by the factor scores.

Three of the propositions distinguishing the first factor are listed below, with the factor scores (from +5 to -5, for factors A to D, respectively) displayed for purposes of comparison:

(+5) +2 -5 +3	The best state is one which most nearly copies the heavenly model by having a minimum of change, a maximum of static perfection, and rulers who best understand what is right and good.
(+4) -1 -1 -4	Man is a "political animal": It is his nature to form groups whose ends are identical to the ends of human life, and without which he cannot fulfill his own purpose.
(+3) +1 +1 0	Both the just man and the ideal state must develop wisdom in their actions, courage in their decisions, and temperance in their desires and appetites. Such ideals can be realized only imperfectly in this world, but they are goals toward which people should work.

The thrust of this classical position, as factor A can be referred to, is in the direction of harmony and organic perfection: Political society is understood as an interrelated whole which approximates the ideal to the extent that, within a division of labor, the parts reach a state of harmonious accommodation. This conception stresses the polis as prior to the person and holds that the individual can realize his or her full potential only through cooperation with others, and one needn't look far

to see how this viewpoint has been carried over into contemporary thinking. As Knights and Roberts (1982), for example, say of modern forms of organization, "The organizational principle of the division of labor builds on the assumption that in relationships with one another individuals can be much more productive than they can ever be on their own" (p. 49).

Factor A is bipolar and is defined at the negative pole by Hobbes. Among the statements distinguishing this view are the following (scores for factors A to D, respectively, with the factor A scores reflected in the direction of the Hobbesian standpoint):

(+5) +4 -5 +1 The basis of government flows from a covenant among the citizens themselves who institute a government to rule over them for their mutual security.

(+5) +1 0 +1 The sole business of government is to protect the lives, liberty and property of people, and if it fails to do this, then the citizens have the right to abolish it and establish a new government.

(+4) +2 0 -2 Politically organized society--the machinery of authority, government and coercion--is not natural to man: It is simply a useful and necessary arrangement for a mankind which has fallen from spiritual grace.

(+3) -2 -3 0 Man is not by nature a social being, but is moved chiefly by fear and selfish desires. The power of the state must be absolute, therefore, in order to perform its main function--namely, to assure the self-preservation of each against all.

This is the classical view multiplied by -1: For Hobbes, political society is an artificial rather than a natural condition, the goal of the state is self preservation rather than the attainment of human perfection, and the metaphysic is mechanistic rather than organic, much as Goldsmith (1966) has described.

The positioning of Plato, Aristotle, Augustine, and Hobbes on factor A is consistent with many of the more intuitive analyses of political theorists. Bluhm (1978), for example, categorizes Plato and Aristotle as "noumenalists" and Hobbes as a "naturalist," with Augustine as a "bridge builder" between the two. On factor A, noumenalists Plato and Aristotle are in a bipolar relationship to naturalist Hobbes, while bridge builder Augustine loads the weakest of all the theorists who define this factor.

If factor A deals with the purpose of political society -- to facilitate attainment of the ideal or to provide security -- factor B addresses the source of authority: Who is to rule? The polarity which emerges pits the social contractarians (Locke, Rousseau) against Machiavelli and Nietzsche. Consider first the social contractarian pole:

-4 (+5) 0 0 There exist certain innate human rights which no government can rightly take away without the consent of the governed.

-3 (+5) +1 -2 The source of all political authority and, therefore, of all true sovereignty must always lie with the people as a whole.

-3 (+4) -2 -1 The institution of any genuine political society results from a free association of intelligent human beings who have deliberately chosen to form the type of society to which they will owe allegiance.

-1 (+3) +1 -5 A social conflict which aims at greater equality has a moral justification which must be denied to efforts which aim at the perpetuation of privilege.

Central to this theory is the view that authority springs from the citizenry and that the form of political association emerges through reason. Priority is also given to equality over privilege. As the factor scores show, the social contractarian thesis advances views at odds with the classical position, but the data also reveal those classical (and specifically Aristotelian) conceptions which survived and were drawn into the modern era, viz.:

(+3 +3) -4 -4 An individual can develop fully as a moral being only through participation in the life of the state.

(+4 +3) -4 -1 The state is a political community which is essential for the happiness of the individual.

(+5 +4) -4 -3 A political society exists for the sake of noble actions: The state is therefore the highest kind of community, for it aims at the highest good.

In a certain sense, the social contractarians retained classical goals while changing the rules of the game by lodging sovereignty in the citizenry. Parenthetically, Hobbes, who is traditionally considered a social contractarian, is arguably definable more in terms of his opposition to classical theorists than in terms of beliefs shared with Locke and Rousseau.

At the opposite pole of this factor is the view of Machiavelli (of The Prince, not The Discourses), who stands in the same bipolar relationship to Rousseau as Hobbes did to Plato and Aristotle (scores below for factor B have been reflected in the Machiavellian direction):

-2 (+5) -1 0 An effective ruler who wishes to retain his power and accomplish his goals should do whatever is appropriate to the situation: He is

not to be concerned with vice or virtue, but only with political efficiency.

-2 (+5) -1 -1 Even though a ruler need not operate within the constraints of traditional ethics, it is still advisable for him to appear as if he were doing so, and this facade should remain in tact as far as possible in order to retain the support of the people.

0 (+3) 0 -1 The law of life under which every political organization exists is growth and expansion. Thus, force is an integral, and most essential, element in politics.

The Machiavellian view, like the social contractarian, is concerned with who governs, but bows are in the direction of the prince rather than the subjects, for whom there is disdain. This second factor therefore pits the natural and inalienable rights of the mass against the force and guile of an elite.

Factor C is purely defined solely by Hume, although aspects of the views of Locke, Marx, and Camus are also associated with it (see Table 1). As might be expected, the Humean hypothesis features the pragmatism of custom and habit (grounded in emotion), and openly rejects idealism, rationalism, and a priori absolutes:

-4 0 (+5) -3 Governments and laws are only useful devices which no one is obliged to respect unless others do likewise.

+1 0 (+4) +2 Although supported by rational reflection, it is natural instinct which leads humankind to accept government and to see the advantage of general and equal laws--i.e., custom and emotion, not reason, dictate political action.

-1 -1 (+4) +1 The sole justification for allegiance is the advantage which it procures to society by preserving peace and order.

-1 -2 (+3) 0 The absolute is not attained nor, above all, created through history. Politics is not religion, or if it is, then it is nothing but the Inquisition.

+5 +2 (-5) +3 The best state is one which most nearly copies the heavenly model by having a minimum of change, a maximum of static perfection, and rulers who best understand what is right and good.

For Hume, political society is governed by convention rather than reason (which is but the slave of passion), and once again we find this view

echoed in contemporary times -- e.g., in Friedrich's (1942) assertion that constitutional democracy is based "on common behavior, rather than on agreement upon fundamentals" (p. 179). According to Friedrich, we wait our turn in line out of habit and not in order to conform to some internalized principle of equality which has been introspectively consulted.

Factor D is defined solely by "contemporaries," a composite of the views of Berelson, Dahl, Eckstein, Sartori, and Schumpeter (as summarized by Pateman, 1970). Burke is also associated with this view, as Duncan and Lukes (1967) anticipated, and Marx is negatively indicated. There is in this outlook a certain apprehension, reminiscent of Le Bon, about too great involvement on the part of the mass:

+1 -3 0 (+5) Dramatic increases in political participation are dangerous to the stability of democratic systems. [Dahl]

+2 -4 -2 (+4) Active participation of the people in the political process leads straight to totalitarianism. [Sartori]

+1 -4 -3 (+4) The electoral mass is incapable of action other than a stampede. [Schumpeter]

Common to the contemporary hypothesis, as in Rousseau, is acceptance of popular sovereignty, but implicit is a companion assumption concerning the fragility of the state: If the people are God, then the state religion must be deism, and the political machinery, once created, must be left alone save in extreme situations -- hence the tie to Burke and Locke:

+1 0 +3 (+5) People are simply not at liberty to destroy the state and its institutions in the hope of some contingent improvement. Their paramount duty is to prevent the world from getting worse--a duty to guard and preserve their inherited liberties and privileges.

-2 +1 0 (+3) Apart from their ultimate right of revolution, the members of a political society should be limited to setting up a legislature or some other governing body, which they must then be obliged to obey so long as basic rights are protected.

The opposite end of factor D is a conglomerate of Marx, Camus, Nietzsche, and others, and expresses a view that is as antagonistic towards the modern state as the contemporary theorists are supportive of it.

Political Philosophy and the Public Mind

Before turning to concluding comments concerning the general implications for political theory of Newton's Fifth Rule, it is worth inquiring about the extent to which the philosophies about political society as sketched out above have succeeded in penetrating public thinking. Like the scientists who study them, ordinary citizens also get their ideas from somewhere, and gaining a deeper appreciation about how this occurs may help us understand ourselves better.

The same political theory Q sample employed above was originally administered to more than 30 respondents from a variety of walks of life who were instructed to provide their own views on these matters by Q sorting the statements from agree (+5) to disagree (-5). Some theorists of mass belief systems might doubt the ability of members of the public to relate to these highly abstract ideas, but it was our experience that even the most unknowledgeable were capable of responding to the task in a meaningful way despite lack of formal training, although most were doubtless unaware of the intricacies of reasoning behind the conclusions and principles contained in the Q sample. We therefore conclude in the positive to Green's (1979) query, "Can a personal philosophy be measured?"

The Q sorts were correlated and factor analyzed, and Figure 2 indicates that two large factors emerged. The data points in Figure 2 represent the subjects' locations in philosophical space, and are plotted as a function of each person's loadings on factors X and Y: Subject number 1, for example, is saturated 0.89 on X and 0.12 on Y.

Virtually every respondent, whether political scientist, bus driver, or secretary, had a significant loading on factor X, which therefore approximates a cultural consensus. The nature of this consensus can be gleaned from the following statements, which gained significantly higher scores in factor X than in Y:

> There exist certain innate human rights which no government can rightly take away without the consent of the governed.
>
> The source of all political authority and, therefore, of all true sovereignty must always lie with the people as a whole.
>
> The sole business of government is to protect the lives, liberty and property of people, and if it fails to do this, then the citizens have the right to abolish it and establish a new government.
>
> The basis of government flows from a covenant among the citizens themselves who institute a government to rule over them for their mutual security.
>
> Both the just man and the ideal state must develop wisdom in their actions, courage in their decisions, and temperance in their desires and appetites. Such ideals can be realized only imperfectly in this world, but they are goals toward which people should work.

States are as their citizens are: They grow out of human characters.

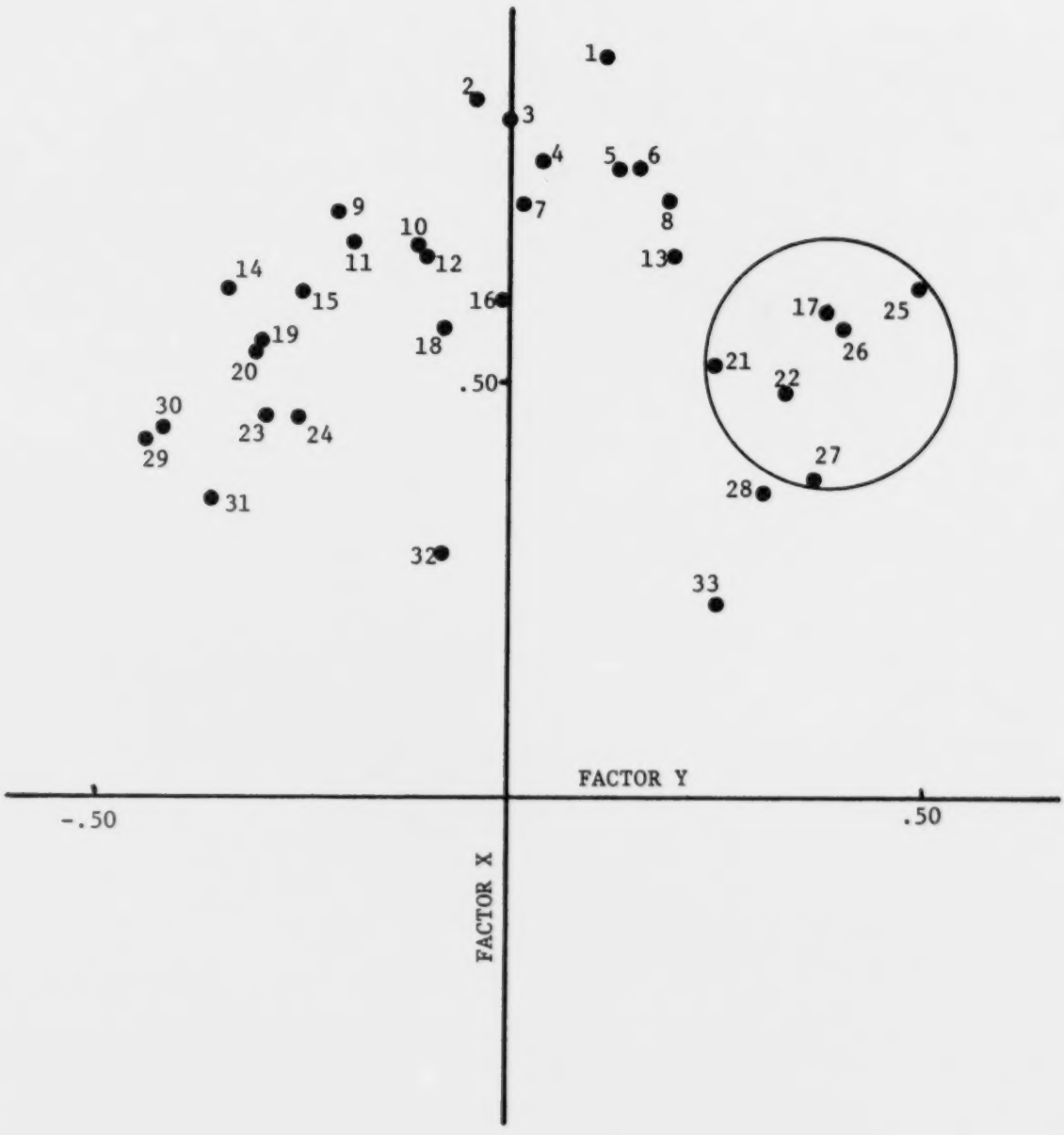

Figure 2. Two factors of the public mind.

The American national character therefore embraces the social contractarian emphasis on individuality, consent, and limited government, but is apparently expansive enough to include elements of Platonic idealism.

Factor Y is a second if less pronounced tributary into the American character. As Figure 2 shows, virtually all respondents participate in the consensus of factor X, but those in the right quadrant drift toward the positive pole of factor Y whereas those in the left quadrant are inclined toward the negative pole. The former is the more interesting by virtue of the following highest scored statements (i.e., those statements gaining factor scores of the magnitude +5 and +4):

> An individual can develop fully as a moral being only through participation in the life of the state.
>
> The state is a political community which is essential for the happiness of the individual.
>
> Man is a "political animal": It is his nature to form groups whose ends are identical to the ends of human life, and without which he cannot fulfill his own purpose.
>
> A political society exists for the sake of noble actions: The state is therefore the highest kind of community, for it aims at the highest good.

All four of these statements are taken from Aristotle and attest to the continued salience of at least that branch of antiquity into the present day. (Conversely, no one of the four statements attributable to Plato achieved a factor Y score higher than -1.)

Of additional interest is the nature of those persons most associated with the positive pole of factor Y. Those subjects whose responses are circled in Figure 2 are all political theorists, and the fact that they cluster together is a reflection of their philosophical likemindedness, a synthesis of social contractarianism (factor X) and Aristotelianism (Y). How did the latter get there, it might be asked, given the 2500 year span since Aristotle?

Two theories can be entertained, the first of which is archeological. Freud sharpened our interest in mental excavation (Bernfeld, 1951), and more exotic forms of psychoanalysis have claimed that historical influences remain as a substratum of the collective unconscious. As Hersch (1980), for example, has suggested, "It is possible ... that a psychological conflict left unresolved at the time it occurred in history is seeking a resolution in the life of the modern individual" (p. 189). (Even modern cognitive psychology has developed an interest in the archaeology of mind: "What we need is a paleontology of consciousness, in which we can discern stratum by stratum how this metaphored world we call subjective consciousness was built up..." [Jaynes, 1976, p. 216; cf. Renfrew, 1982].) An archeological theory in this case would hold than an Aristotelian substratum, overshadowed by Renaissance innovations, remains active in the public mind and has been transmitted by genetic or other mechanisms as yet imperfectly understood, and that factor Y is its contemporary manifestation.

A more plausible explanation is that the Aristotelian vision exemplified by factor Y is the result of formal training, i.e., that those who advance this point of view (namely, academic political theorists) have incorporated this outlook as a result of their schooling and that they transmit this orientation as part of an oral and literary tradition to the next generation of political theorists. This interpersonal explanation has the advantage of being empirical -- we can see aspiring political theorists learning Aristotelian principles -- and serves to explain why political scholars and others formally exposed to academic training of this kind are apparently the only persons who adhere, in part, to this worldview.

The archeological theory has a certain mysterious appeal, however, and has therefore not been wholly discounted, for all this theory requires in order to lend it credibility is one lone respondent who has had no exposure to political philosophical ideas but who is nevertheless a thorough going Aristotelian. Consequently, in seminars during the past five years we have explicitly instructed student collaborators to administer this political theory Q sort to the most untrained and politically unsophisticated respondents with whom they are acquainted, and of the nearly 100 persons so far tested not a single one has yet provided a personal viewpoint which correlates with the Aristotelian pole of factor Y. Until such time as we are able to locate a "natural Aristotelian" -- which, like tracking down a yeti from its spores, would represent a social scientific find of the first order -- we are content to side with Newton, contra Descartes: "I do not sense that any idea whatever may be innate" (from the unpublished Fifth Rule).

The four philosophical factors from Table 1 and the two public attitude factors from Figure 2 were submitted to a second-order factor analysis, with results as shown in Table 2. The most important connection which this analysis reveals is that between the public consensus (X) on the one hand and the social contract (B) and Hume (C) factors on the other, and it is important in light of recent historical scholarship concerning the genesis of the American public ideology. Locke is of course conventionally regarded as the main influence on American political ideas, and the high intercorrelation of factors B and X, both of which are strongly associated with second-order factor II, is a manifestation in factor analytic terms of this connection. But Wills (1981) has recently stressed the importance of Hume to American thought (through the conservative conduit of Federalists Hamilton, Jay, and Madison), and the fact that the Hume viewpoint (factor C) is also connected to the public consensus (factor X) attests to this influence as well. In factor terms, the association of factor X with the social contract factor B is more than three times stronger than the association of X with the Humean factor C, and to that extent can it be suggested that Wills may have overstated his case, as some critics (e.g., Reck, 1982) have complained. Moreover, with Table 1 as hindsight, it can also be suggested that some of Hume's views may have been foreshadowed by Locke, giving added weight to the latter's influence through Hume -- a kind of philosophical path analysis.

Table 2

SECOND ORDER ANALYSIS

	First Order Factors	Second Order Factors I	II	III	IV
A	Classical (Plato, Aristotle)	(68)	-02	-09	04
B	Social Contract (Rousseau, Locke)	03	(86)	-05	-10
C	Hume (and Locke)	02	09	(66)	02
D	Contemporary (Dahl et al.)	18	-24	00	(80)
X	Public (consensus)	05	(82)	(46)	04
Y	Public (Aristotelian)	(40)	17	-06	(-74)
	First author	(57)	(43)	(41)	-23
	Second author	12	(55)	(39)	(-54)

Historian Forrest McDonald (1983) has contrasted Lockean modernity (through Jefferson) with Humean conservatism (Hamilton), and to the extent both of the trends have been incorporated within the same public mentality, albeit in unequal measure, an ideological situation conceptually similar to that in particle physics may have been created. (Indeed, no less a figure than Niels Bohr [1950] has explicitly suggested that the psychical experiences of thought and sentiments "exhibit striking analogy with the situation in atomic physics" [p. 54].) For example, the oft-noted capacity of an ordinary member of the American public to vacillate randomly between liberalism and conservatism, even within bounds of the same polling interview, has frequently been attributed to ignorance or lack of functional constraint among idea elements, but this may merely constitute a Newtonian conclusion about a non-Newtonian phenomenon. At the quantum level, as Capra (1982) has nicely put it, "If I ask it a particle question, it will give me a particle answer; if I ask it a wave question, it will give me a wave answer" (p. 87). The activity of the observer is therefore intertwined with the phenomenon under observation. By the same token, members of the public, depending on conditions, may give Lockean or Humean or other kinds of responses which exist as complimentarities that are unpredictable a priori and equipotentially existent within the concourse that is our political heritage. If this is the case, then the study of the public mind will have to be placed on a new footing, and one that will have to abandon the concept of idea elements just as modern physics has had to abandon the concept of fundamental entities in favor of a central role for self consistency (Chew, 1968).

Finally, a word about the relativity of observational standpoint.

As shown in Table 2, the authors provided Q-sort representations of their own views about political society, and these were entered into the same second-order analysis with the four philosophical and two public attitude factors. As minimally acculturated specimens of their culture, both authors were associated with factors II (social contract) and III (Hume), thereby providing further substantiation to the view, attributed to Kurt Koffka, that "we are to some extent, all of us, what the great minds of the past have made us" (Harrower, 1983, p. 251). However, the first author is additionally associated with classical factor I, whereas the second author is negatively correlated with the contemporary theorists on factor IV. The value of this operation is that it permits the observer the opportunity to monitor the location of the self vis-a-vis that which is to be observed, hence informs him or her about that range of knowledge for which a degree of detachment can be claimed. There are of course occasions in which it is fruitful to permit the self to commingle introspectively and in an unguarded way with that which is observed, as in psychoanalysis (Jacobs, 1985) and even political theory (Keohane, 1975), but the most successful explorers have been those who have kept a running log of the coordinates of the self's trajectory, and in modern relativity theory the specification of observational standpoint has been shown to be prerequisite to knowledge.

Einstein (1954) once said that value is determined primarily by the extent to which the person "has attained liberation from the self" (p. 12), and in this connection we can see from Table 2 that neither the first nor second author can speak dispassionately about factors II or III, both of which are correlated with their own personal views: To this extent are they culturally biased. However, the first author can speak in a relatively detached way about the contemporary theorists since his own view is not associated with factor IV, and the same can be said about the second author with respect to classical factor I: The classical period for her represents "personal knowledge" (Polanyi, 1958), i.e., it is not her own view but a philosophical system about which she has knowledge, and to this extent can she be detached about it -- not "objective" necessarily, but detached. The self is still involved, obviously, but it is the contemplative self and not the implicated self.

Towards a Science of Political Philosophy

Physical science of the twentieth century has been more receptive than social science to the philosophical implications of its own discoveries. Einstein's discoveries, for example, simultaneously complemented and deconstructed the assumptions of classical physics, and the admission of relativity into scientific discourse profoundly altered the absolutism and certainty that had been such an integral part of classical physics. The pioneers of modern science were continually confronted by what could only be perceived as paradoxical in the context of their traditional understandings (Capra, 1982, p. 76), and only when they opened themselves to new ways of thinking were they able to resolve the paradoxes. What became known as quantum physics not only changed these scientists and their profession, it signaled the beginning of a challenge to our philosophical attitude towards the universe, a challenge which brought into question the long standing exile of subjectivity, which has remained frozen and encapsulated since Descartes' separation of

mind and matter.

Q methodology permits integration into the social sciences of those aspects of reality which correspond to the nonmeasurable and nonquantifiable of the physical sciences: Structure and form take precedence in a subjective science, as opposed to the testability and predictability to which the external material world is amenable. If Galileo bequeathed to us a legacy which looks only to those properties which can be observed and measured, therefore, as Capra (1982) has suggested, then social scientists require an alternative which permits study beyond that which would otherwise be consigned to the netherworld of nonquantifiability. The social sciences, with their feelings of inferiority, have clung to these notions more tightly than their colleagues in the other sciences. Dwelling in the realm of res cogitans has led us to aspire to the heights of res extensa.

What the preceding pages propose, therefore, is not a new theory of politics, nor a quantitative alternative to political philosophy, nor even a new classification of political ideas. Our interest at this point is not substantive; it is, rather, purely methodological -- to suggest an instrumental adjunct to political theorizing that is aligned with current developments in science and that offers the philosopher a tool to assist in the orderly examination of political thinking, including the philosopher's own.

Like the telescope in astronomy, the X-ray machine in medicine, and the method of free association in psychoanalysis, the procedures illustrated above are designed to enhance perception and extend the range of the inquiring mind into the more dimly lit reaches of human subjectivity, thereby providing a palliative for Runciman's (1963) pessimistic conclusion that "a political philosophy...is like a taste for ice-cream. One can only state one's taste and go away -- there is no point in arguing" (p. 156). It may be true that there is no point in arguing, but one need no longer be satisfied with simply stating one's case and going one's way, for it is now possible to examine the structure of thought under any and all conditions in which self referentiality pertains: Whether the focus is on the nature of the universe or the nature of justice, the principles and procedures of subjective science, including Stephenson's (1979) revision of Newton's Fifth Rule, can be applied.

Note

1. The 45 statements of the Political Theory Q Sample are available upon request. In reality, each of the 13 constructed Q sorts (see Table 1) was a composite of eight separate constructions composed by the authors plus members of their graduate seminar in political theory. In the case of the Platonic viewpoint, for example, the seminar members, following discussions and readings on Plato, each provided his or her conception of Plato's position, and the eight independently rendered Q sorts were then correlated and factor analyzed. This procedure was followed in each of the 13 cases, and in every instance (save one, Camus) only one strong factor emerged, the factor scores for which were taken as the best estimate of the Platonic (or Hobbesian or other) perspective.

Each factor may therefore be likened to a Platonic Pure Form, with the various individual constructions akin to shadowy approximations, and each bears witness to Aristotle's assertion that "no one is able to attain the truth adequately...but every one says something true about the nature of things, and while individually they contribute little or nothing to the truth, by the union of all a considerable amount is amassed" (Metaphysics, Bk 2, Chap. 1).

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